Release notes for ENDF/B Development n-048_Cd_110 evaluation

April 26, 2017

- `groupie` Errors:

  1. Very small elastic cross section found
     0: Small elastic

```
Multi-Group and Multi-Band Parameters from ENDF/B Data (GROUPIE 2015-2)
-------------------------------------------------------------------------------
ENDF/B Input and Output Data Filenames
ENDFB.IN
ENDFB.OUT
... [97 more lines]
```

- `fudge-4.0` Warnings:

  1. Cross section does not match sum of linked reaction cross sections
     crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.13%
```

- `fudge-4.0` Errors:

  1. Calculated and tabulated Q values disagree.
     reaction label 16: n[multiplicity:'2'] + Cd109 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9805516.11819458 eV vs -9880304. eV!
```

  2. Calculated and tabulated Q values disagree.
     reaction label 17: n[multiplicity:'3'] + Cd108 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -17132933.08680725 eV vs -1.7243e7 eV!
```

  3. Calculated and tabulated Q values disagree.
     reaction label 18: n + H1 + Ag109 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -8808924.917129517 eV vs -8916904. eV!
```

  4. Calculated and tabulated Q values disagree.
     reaction label 19: n + H2 + Ag108 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -15776509.49861145 eV vs -1.5886e7 eV!
```

  5. Calculated and tabulated Q values disagree.
     reaction label 20: n + H3 + Ag107 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -16790686.51551819 eV vs -1.6896e7 eV!
```

  6. Calculated and tabulated Q values disagree.
     reaction label 21: Cd111 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 7086213.212387085 eV vs 6976804. eV!
```

  7. Calculated and tabulated Q values disagree.
     reaction label 22: n + He4 + Pd106 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -2765060.934417725 eV vs -2861002. eV!
```

8. Calculated and tabulated Q values disagree.
   reaction label 23: H1 + Ag110_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -1999725.100204468 eV vs -2.1108e6 eV!
```

9. Calculated and tabulated Q values disagree.
   reaction label 24: H2 + Ag109_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -6584358.816192627 eV vs -6692204. eV!
```

10. Calculated and tabulated Q values disagree.
    reaction label 25: H3 + Ag108_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9519276.557998657 eV vs -9.88e6 eV!
```

11. Calculated and tabulated Q values disagree.
    reaction label 26: He3 + Pd108_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -7578216.65977478 eV vs -7687104. eV!
```

12. Calculated and tabulated Q values disagree.
    reaction label 27: He4 + Pd107_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 3771372.275222778 eV vs 3701002. eV!
```

- `njoy2012` Warnings:

1. Message comes from several resonance types that do not support the calculation of angular distributions. Some of them can be used if `Want_SAMRL_RM or Want_SAMRML_BW are true.`
   reconr...reconstruct pointwise cross sections in pendf format (0): RECONR/calculation of angular distribution not installed (0)

```
 ---message from rdf2bw---calculation of angular distribution not installed.
   samm max legendre order:  0
```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 16
                         only mf4/mf5 provided
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 17
                         only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 22
                          only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 28
                          only mf4/mf5 provided
```

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 32
                          only mf4/mf5 provided
```

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 33
                          only mf4/mf5 provided
```

8. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (6): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 91
                          only mf4/mf5 provided
```